CG Antenna

SB-2000 USB Radio Interface

Operating Manual

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FEATURES

- **Connect your computer with USB port. No need serial or parallel port.**
  Most of Radio programs are built based on COM serial port of PC computer. But the most latest PC computers don't have a serial port.

- **USB to UART bridge by FT232 single chip. USB 2.0 compliant.**
  To be compatible with the legacy radio program, we still have to keep using serial port. That's why we choose to use USB to UART bridge which converts the USB to serial port. FT232R is a very reliable industry single-chip USB to UART bridge.

- **CAT, CI/V controller and audio transformer are combined together.**
  No sophisticate software setting. Very clearly operate from reachable setting on the control panel. It supports CAT with RS232 protocol. So it's compatible with the most latest transceivers.

- **Complete isolation between computer and radio station.**
  1. Optical isolation used for digital signal.
  2. Audio signal isolated by 1:1 transformer. It has internal static isolation. Excellent EMC (Electromagnetic compatibility)

- **Operated by computer USB power. No need extra power.**
  When you are in your expedition or mobile, you will not have extra power headache with SB-2000. It uses the power from your computer's USB port.

- **Very compact size, easy to carry.**
  Weight less than 400 grams. Pocket size only.

- **Supply with full accessories.**
  It comes with USB, CAT or CI/V, data and audio cables.

FUNCTIONS

SB-2000 links your radio transceiver with the computer.

- **Control radio operation via CAT, CI/V.**
  You can control your radio if it supports CAT or CI/V protocol from your computer.

- **Operate RTTY, PSK31, SSTV, FAX, and etc. digital mode.**
  From your computer you can easily operate digital mode with proper software. Turn your computer into a professional expensive DTE.

- **Transmit and receive CW.**
  If you want to be relaxed to operate CW, you can choose to use software to send or receive Morse code. Use your computer keyboard instead of paddle or straight key. Read all received Morse code from your computer screen.

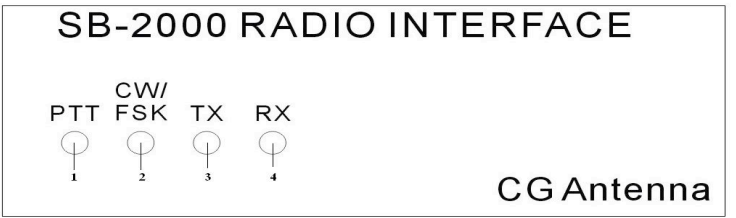
- **Support ECHOLINK to control remote station.**
  ECHOLINK allows radio stations to communicate with one another by using Voice over IP (VoIP) technology on the Internet.

- **Record your SSB voice session.**

- **Support FSK operation.**

FRONT PANEL

Front panel has all the indicators.
Diagram 1.



1. **PTT** indicator
   This indicator lights on when it's under operating RTS control signal. Usually it's the PTT output.

2. **CW/FSK** indicator
   This indicator lights on when it's under operating DTR control signal. Usually it's the CW or FSK output.

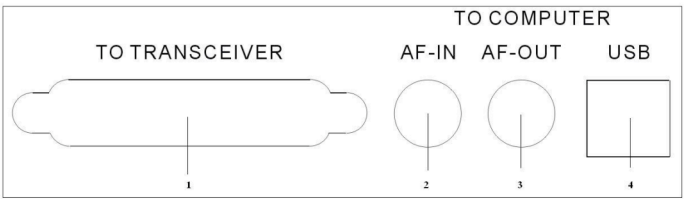
3. **TX** indicator
   This indicator lights on when the computer sending CAT or CI/V signal to the transceiver.

4. **RX** indicator
   This indicator lights on when the computer receiving CAT or CI/V signal from the transceiver.

REAR PANEL

Rear panel has all the jacks to the computer and the transceiver.

Diagram 2.



1. **TO TRANSCEIVER** port
   This 25-pin female DB-25 port connects to the data, CAT or CI/V and CW port of transceiver.

2. **AF-IN** jack
   This RCA jack connects to the audio-out or speaker socket of the sound card in the computer.

3. **AF-OUT** jack
   This RCA jack connects to the audio-in or microphone socket of the sound card in the computer.

4. **USB** port
   This USB port connects to the USB port of computer.

HARDWARE INSTALLATION

Cable connection
Please use the suitable cables that are provided by CG Antenna. Most cables of modern transceiver are existed.

Rear panel to transceiver
The 25-pin data socket connects to the data, CAT or CI/V and CW port of the transceiver..

The RCA-3.5 mm connects the AF-IN and the audio output of the computer's sound card. Also connects the AF-OUT and the audio input of the computer's sound card.

USB A-B cable connects the USB ports of the radio interface and the computer.

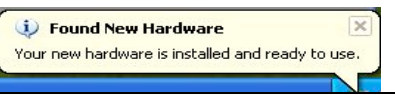
SOFTWARE INSTALLATION

SB-2000 comes with software driver for Windows 98, 2000/XP, Vista, Mac OS X and Linux.

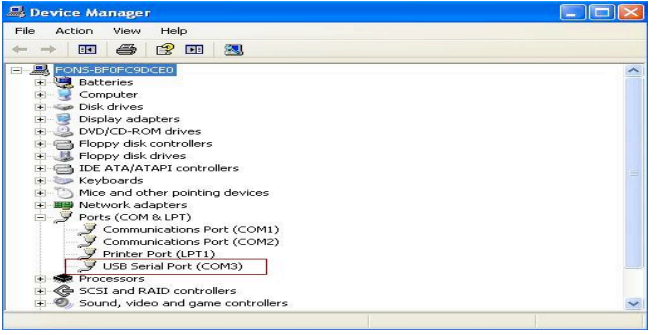
Computer system requirement
CPU: Intel P3 500 MHz
RAM: 256MB
CD-ROM
At least one USB 1.1 port and a sound card.

Installing software driver on Windows 2000, XP & Vista
** Please do not connect SB-2000's USB cable to the computer at this moment*
- Insert installation CD into CD-ROM.
- Click 'My Computer' , Click the icon your CD driver. E.g.: E:\
- Double click e:\driver\Win2000_XP_Vista\SB2000.exe
- The program will install the suitable driver into system.

Now connect the SB-2000 to your computer's USB port via USB cable. The system will detect it.

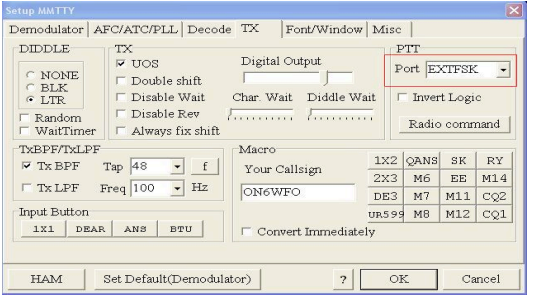


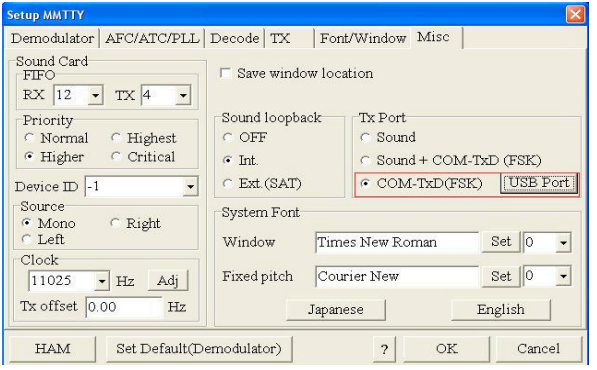
Check COM port configuration
In the Control Panel -> System -> Hardware -> Device Manager
You will see a new port be added. **Write down the port number.**



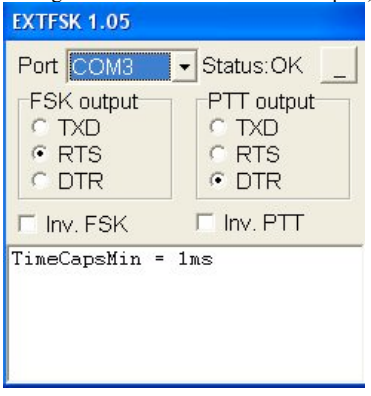
Now you can setup your radio program to use this port to operate.

- *If you use MMTTY and you want to transmit in FSK mode, you have to install COMFSK plug-in. Please refer the detail installation to MMTTY's manual.*




Setup MMTTY
Demodulator
AFC/ATC/PLL
Decode
TX
Font/Window
Misc
Sound Card
FIFO
RX 12
TX 4
Priority
Normal
Highest
Higher
Critical
Device ID -1
Source
Mono
Right
Left
Clock
11025 Hz
Adj
Tx offset 0.00 Hz
Save window location
Sound loopback
OFF
Int.
Ext. (SAT)
Tx Port
Sound
Sound + COM-TxD (FSK)
COM-TxD(FSK)
USB Port
System Font
Window
Times New Roman
Set 0
Fixed pitch
Courier New
Set 0
Japanese
English
HAM
Set Default(Demodulator)
?
OK
Cancel

Configure the EXTFSK to use correct port, DTR for FSK output and RTS for PTT (by default)



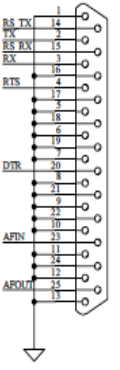
CABLE SPECIFICATION

1. **SP & MIC cable**
   It is a RCA to 3.5 mm audio jack cable. The impedance of the jack is 600 ohms.

2. **USB cable**
   The 4-pin B to 4-pin A USB cable.

3. **DB-25 to data, CAT or CI/V and CW port of transceiver cable**

The right diagram shows the definition of the DB-25 plug.



RS TX/RX
TX/RX function (from computer) in RS-232 protocol. It's used by Yaesu or Kenwood for those CAT rig control in RS-232 protocol.

TX/RX
TX/RX function (from computer) in TTL protocol. Both CI/V and CAT use this way.

RTS/DTR
Output control. For most ham radio software setting, RTS is used for PTT and DTR is used for CW/FSK.

AF IN/OUT (Computer sound card based)
AF IN is the audio from transceiver. AF OUT is the audio to transceiver.

NOTICE

The current version of SB-2000 has very good interference isolation. We don't suggest user to operate rig control with speed above 14400 bps either CAT or CI-V. Even transceiver manufacturers don't suggest.

SB-2000 supports the rig control speed up to 19200 bps.

If you are facing low audio level, you can try to adjust the audio in/out level in your computer system. Also you can adjust the in/out value in your transceiver. The default value of certain Yaesu transceivers are too low or high, you have to adjust it. Please consult the manual of your transceiver.

If your transceiver supports VoX mode in digital operation, enable it.

WARRANTY

CG antenna warrants SB-2000 against defects in material for a period of ONE (1) year unless otherwise indicated.

The warranty does not cover damage, improper use, abuse, or conditions beyond our control (i.e. lightning).

CG Antenna assumes no liability or responsibility for damage to other devices or injuries to persons as a consequence of using our products.

If you don't accept the terms of the above warranty, please return the products in the original package to your reseller for refund (doesn't include the shipping or possible restocking charge).

SERVICE

If you have any problem of your CG product. Please contact your local sales directly. Then we can arrange the repair service.

If return for repair is needed, please wrap and pack your unit well to protect damage during transportation or handling. Include a note with your name, address, phone number, email and brief description of the problem.

**CG antenna and our distributors can not be responsible for unit lost or damage in shipping.*